



PLANT DISEASE AND INSECT ADVISORY

Entomology and Plant Pathology
Oklahoma State University
127 Noble Research Center
Stillwater, OK 74078



Vol. 7, No. 29

<http://entopl.okstate.edu/Pddl/>

July 25, 2008

Watch for Panicle-Feeding Caterpillars in Sorghum

Tom A. Royer, Extension Entomologist



I received my first report of “worms” feeding on sorghum this week which I identified as fall armyworms. The fall armyworm, and its cousin, the corn earworm comprise a complex of caterpillars called sorghum “headworms”. Headworms feed in the whorl and the emerged grain head of sorghum. In the past, I rarely recommended that a producer treat for headworms that were infesting whorl stage sorghum. Why? Because whorl feeding rarely causes enough yield loss to warrant treatment costs, AND it is difficult to get effective control because the worms are protected from exposure to the insecticide. Having said that and with sorghum prices at new highs, it is time to revisit those recommendations.

Damage from headworm whorl-feeding is often unnoticed until severe damage is evident, so it is important to check fields regularly. Fall armyworms and corn earworms are both striped caterpillars with very little body “hair.” The fall armyworm can be distinguished from the corn earworm by the distinctive white or yellow inverted “Y” on the head. Corn earworms can range in color from light green, to pink, to nearly black.

Threshold for Whorl Damage: We don’t have much research to evaluate yield loss due to leaf feeding. Research conducted in the late 60’s showed no measurable yield loss due to leaf feeding, because the sorghum plant can compensate for leaf damage. However, with today’s new varieties and the increased value of grain, fields should be scouted. If plants are very small (2-4 leaf stage), it is important to scout and treat if fall armyworms are feeding, because they can literally kill small, newly emerged plants by eating the growing point. Treat if 25% of small (2-4 leaf stage) plants are infested.

In larger plants examine plants for whorl feeding and presence of caterpillars. Examine 30 plants (5 consecutive plants in 6 different locations) for evidence of feeding. Pull the whorl from damaged plants and unroll the leaves to find the caterpillars that are feeding on that plant. Early signs include “windowpaning” and “shotholing”.

An example for all worms under ½ inch:

Worm size (Circle) **Small** (less than ½ inches long)
Large (more than ½ inches long)
Mixed (50% large, 50% small)

Control Cost = \$8.00, Market Value of Crop = \$7.00

Plants per acre = 22 x 1000 = 22,000.

Calculated EIL number of caterpillars per acre (from EIL Table) 58,000/acre

58,000 caterpillars per acre / 22,000 plants per acre = 2.63 worms per head

EIL = 2.63 worms per head.

The EIL is **2.63 worms per plant**, and you collected **1.56 worms per plant** (47 worms/ 30 plants). You **should not treat** because you have not exceeded the EIL.

An example for worms of mixed sizes:

Worm size (Circle) Small (less than ½ inches long)
Large (more than ½ inches long)
Mixed (50% large, 50% small)

Control Cost = \$8.00, Market Value of Crop = \$7.00

Plants per acre = 22 x 1000 = 22,000.

Calculated EIL number of caterpillars per acre (from EIL Table) 34,000/acre

34,000 caterpillars per acre / 22,000 plants per acre = 1.54 worms per head

EIL = 1.54 worms per head.

The EIL is **1.54 worms per plant**, and you collected **1.56 worms per plant** (47 worms/ 30 plants). You **should treat** because you have exceeded the EIL, **or** resample in 2-3 days, especially if there is reason to believe that more worm mortality will occur due to heavy rains or numerous predators present in the field or if you can't immediately schedule a treatment.

Dr. Richard Grantham, Director, Plant Disease and Insect Diagnostic Laboratory

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Sorghum Headworm

Prepared by Tom A. Royer
Extension Entomologist
Department of Entomology and Plant Pathology
Oklahoma Cooperative Extension Service
Oklahoma State University, Stillwater

Common Names: Corn earworm
 Fall armyworm

Damaging Stage: Larvae
Plant Part Attacked Whorl, Panicle
Development: Complete: egg, larva, pupa, adult

Generations per year: 2-6, depending on species

Nature of Damage: In whorl, feeding begins as “windowpaning by young larvae, and as they get bigger, they cause shotholes. In panicles, they feed and damage developing seed

When to Scout Emergence through soft dough stage.

How to Scout Examine 30 plant heads using the “shake bucket” method (add 1 plant per acre for fields over 40 acres), and count the number of headworms that fall into the bucket. Divide the number of worms captured by 30 to get an average number of worms per head.



Windowpaning



Shotholes



Panicle Feeding

Economic Injury Levels (EIL) for Sorghum Headworms

(Adapted from B-1220, Texas A&M University)

EIL* For Large (1/2 inch or longer) # Headworms/Acre						
Control Costs (\$) per Acre	Market Value of Crop (\$ per CWT)					
	5.00	6.00	7.00	8.00	9.00	10.00
6.00	11700	9750	8500	7250	6400	5750
8.00	15600	13000	11000	9750	8600	7750
10.00	19500	16250	14000	12250	10800	9750
12.00	23400	19500	16750	14750	13000	11750

EIL* For Small (1/4 to 1/2 inch) # Headworms/Acre						
Control Costs (\$) per Acre	Market Value of Crop (\$ per CWT)					
	5.00	6.00	7.00	8.00	9.00	10.00
6.00	61750	51500	44750	38250	34400	31250
8.00	82250	68500	58000	51250	46000	41750
10.00	102750	87750	73750	64500	56750	51500
12.00	123500	102750	88250	77750	68250	62000

EIL For Mixed (50% small, 50% large) # Headworms/Acre						
Control Costs (\$) per Acre	Market Value of Crop (\$ per CWT)					
	5.00	6.00	7.00	8.00	9.00	10.00
6.00	36750	30500	26500	22750	20500	18500
8.00	49000	40750	34500	30500	27250	24750
10.00	61000	52000	43750	38250	33750	30500
12.00	73500	61250	52500	46250	40500	36750

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